

Appl. No. 10/823,953
Amdt. dated November 2, 2007
Reply to Office Action of March 23, 2007

Remarks/Arguments

Reconsideration of this application is respectfully requested.

Claims 1-7, 9, and 11-15 are pending in the application with claims 8 and 10 having been previously canceled and claims 1, 5, 6, 14, and 15 having been currently amended.

Claims 1-7, 9, and 11-15 have been rejected under 35 U.S.C. 102(e) as being anticipated by Botros (U.S. Patent No. 6,716,928).

Botros discloses improved grafted propylene copolymer compositions and adhesive blends containing them. The grafts are obtained by reacting propylene-ethylene impact copolymers having specified rubber contents and molecular weight distributions with ethylenically unsaturated acids or acid derivatives, such as maleic anhydride.

The crux of the Botros disclosure is stated in the paragraph beginning in column 2 of the patent at line 52,

"These and other objectives are achieved with the present invention wherein it has unexpectedly been found that *a select group of propylene impact copolymers* can be grafted with olefinically unsaturated carboxylic acid and derivative monomers to produce functionalized products characterized by high grafting monomer functionality and relatively low MFR." (Emphasis added.)

As currently amended, the claims of the present application are directed to a process for preparing a composite material comprising mixing at least one natural fiber, at least one polypropylene resin, and at least one functionalized polypropylene homopolymer coupling agent to provide said composite material; wherein said functionalized polypropylene homopolymer coupling agent possesses a molecular weight distribution of greater than 2.5

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(M_w/M_n by GPC) and comprises a base *polypropylene homopolymer resin* that is grafted with a total of more than about 1 mmole of at least one polar monomer per 100 grams of functionalized homopolymer polypropylene coupling agent.

According to the reference, a propylene-ethylene impact copolymer comprising a reactor-made intimate mixture of propylene homopolymer and 20 wt % or more ethylene-propylene copolymer is grafted with, e.g., maleic anhydride, in the presence of a free radical generating catalyst. Thus, the reference and the present application are directed to the grafting of maleic anhydride (for example) onto two different materials, i.e., a propylene-ethylene impact copolymer (Botros) and polypropylene homopolymer (present invention). Accordingly, it is submitted that the present invention is not anticipated by Botros and, therefore, it is requested that the rejection of claims 1-7, 9, and 11-15 under 35 U.S.C. 102(e) as being anticipated by Botros be withdrawn.

Further, claim 4 of the present application is directed to a process wherein a natural fiber is employed at a level in the range of from about 20 to about 85 weight % based on the total formulation weight of the composite material described in claim 1. Although Botros does indicate that the grafted impact polymers of his invention can be used as coupling agents for "filled polyolefins such as polypropylene filled with glass fibers, mineral fillers, wood, flour and the like", there is no disclosure or suggestion regarding the degree of loading of the filler with the coupling agent ought to be, further removing this claim from any anticipation.

Still further, claim 15 of the present application is directed to a composite material comprising at least one natural fiber, at least one polypropylene resin, at least one functionalized polypropylene homopolymer coupling agent, and *at least one lubricant*

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selected from the group consisting of fatty acid amides and fatty acid esters; wherein said functionalized polypropylene homopolymer coupling agent possesses a molecular weight distribution of greater than 2.5 (M_w/M_n by GPC) and comprises a base polypropylene homopolymer resin that is grafted with a total of more than about 1 mmole of at least one polar monomer per 100 grams of functionalized polypropylene homopolymer coupling agent. It has been shown in Examples 20 and 25-28 of the present application that the functionalized coupling agents of the present invention are less susceptible to interference from lubricants than are previously known coupling agents and that adding either a fatty acid ester or a blend of fatty acid esters and amides to formulations containing such previously known coupling agents resulted in a significant reduction in mechanical properties, whereas when a functionalized polyolefin coupling agent of the present invention was combined with the same two lubricants, reductions in mechanical properties were much smaller.

There is no disclosure or suggestion in the Botros reference of a composite material comprising at least one lubricant selected from the group consisting of fatty acid amides and fatty acid esters or of the advantages to be achieved by the application of the present invention to such lubricated composites. Accordingly, claim 15 is even further removed from being anticipated by the cited reference.

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In view of the foregoing, it is submitted that this application is in condition for allowance and an early Office Action to that end is earnestly solicited.

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Date

Paul Reitenbach Reg. No. 30,754
for Daniel Reitenbach
Registration No. 30,970

Chemtura Corporation
Benson Road
Middlebury, CT 06749

(203) 573-2000